

## Chapter IV. Mitigation Strategy

This chapter contains a listing of the five goals, objectives, and projects to mitigate the hazards of most concern to Carbon County (not including wildland fire.)

Three of the goals address natural hazards while two of the goals address other types of hazards that were raised by citizens and elected officials. Following the goals, objectives, and projects is a table listing the projects. The table gives the ranking for each project as high, medium, or low, and lists potential resources to accomplish the projects. Finally, project implementation is discussed.

The following goals, objectives and projects were developed by the Steering Committee in response to the hazards of most concern to the county identified in the public meetings. Wildland fire was identified as the top concern. The goals, objectives and projects for wildland fire are found in Chapter V, following the fire risk assessment. The fire projects were identified and prioritized by the Carbon County Fire Council which has representation from all of the fire departments in the county, the county fire warden, the Department of Natural Resources and Conservation, the Bureau of Land Management, and the Custer National Forest.

### Goals, Objectives, and Projects

#### **GOAL ONE: MANAGE IMPACTS OF SEVERE WINTER STORMS.**



Snow removal equipment in Red Lodge

### **Objective 1) Maintain the power supply.**

1.1.a. Rely on power companies to quickly restore power when lost. County and municipalities' public works assist in clearing access for work to restore power.

1.1.b. Purchase back-up generators for shelter locations.

1.1.c. Purchase several generators and trailers that can be cached and moved to locations as needed.

1.1.d. Work with utilities as requested to support preparation of Emergency Restoration plans.



Red Lodge North Side Substation

### **Objective 2) Maintain communications before, during, and after winter storms.**

1.2.a. Utilize new county communication trailer for storm incidents.

1.2.b. Pursue improved cellular phone service in the Clarks Fork Valley.

1.2.c. Continue issuing advance storm warnings in cooperation with EAS in Yellowstone County.

1.2.d. Add a repeater at Bridger.

### **Objective 3) Educate the public about winter storms.**

1.3.a. Distribute winter storm information in welcome packets to new residents.

- 1.3.b. Invite the National Weather Service to offer programs to school children about winter storms.
- 1.3.c. Run media spots on winter survival

**Objective 4) Be prepared to shelter people.**

- 1.4.a. Maintain shelter agreements with American Red Cross
- 1.4.b. Have a shelter plan for stranded individuals (motorists, skiers, etc.)
- 1.4.c. Get the word out on where people can go for shelter.

**Objective 5) Remove snow in a timely manner.**

- 1.5.a. Publish county snow removal priorities annually, distribute to realtors
- 1.5.b. Develop a resource list of snow removal equipment in the county that could be called into service in an emergency.
- 1.5.c. Contact Wyoming DOT to implement an agreement for mutual assistance.
- 1.5.d. Contact Park County, Wyoming to implement an agreement for mutual assistance.

**GOAL TWO: BUILD AND MAINTAIN CAPABILITY TO RESPOND QUICKLY TO WIND EVENTS.**

**Objective 1) Address public safety wind hazards.**

- 2.1.a. Identify tree safety hazards in communities and contract with a tree falling service to drop hazardous trees.
- 2.1.b. Educate the public to immediately report trees down on power lines.

**Objective 2) Educate the public about wind events.**

- 2.2.a. Obtain brochures on building practices and materials to avoid wind damage. Make this information available throughout the county at insurance offices, lumber yards, utilities, etc.
- 2.2.b. Sponsor weather spotter training put on by the National Weather Service.
- 2.2.c. Educate the public about the importance of electric utility right-of-way maintenance and clearing.

**Objective 3) Ensure residents become aware of tornados that are spotted.**

- 2.3.a. Make a bulk purchase of weather radios for schools and households.

**Objective 4) Build new structures and replace major components on existing structures to minimize exposure to injury and loss from wind events.**

- 2.4.a. Enforce existing building codes in Red Lodge.

2.4.b. Host an educational program for local architects, engineers, and contractors on building standards and materials for wind events.

**GOAL THREE: MINIMIZE THE FREQUENCY AND IMPACT OF HAZMAT INCIDENTS.**

**Objective 1) Determine vulnerability to future hazardous material spills.**

3.1.a. Conduct an assessment of past hazardous material spills and analyze the type, location, and cause. Determine whether any action is needed in response.

**Objective 2) Be prepared to respond safely to hazardous material spills.**

3.2.a. Continue to obtain and offer training for responders in how to respond to those materials being transported through the county.

3.2.b. Review agreements for hazmat response assistance.

3.2.c. Update or execute new agreements as needed.

3.2.d. Request a list of the top 25 hazardous materials being transported through the county on the railroad from BNSF.

**GOAL FOUR: BE PREPARED TO RESPOND TO FLOODS AS A RESULT OF DAM FAILURE, FLASH FLOODS, AND RIVER FLOODING (ICE JAMS AND SEASONAL FLOODS.)**

**Objective 1) Educate the public about flooding.**

4.1.a. Educate potentially affected citizens about warning system for dam failure.

4.1.b. Make information available to the public about building in the floodplain.

4.1.c. Invite the National Weather Service to give a presentation on flooding.

**Objective 2) Monitor conditions that could lead to flooding.**

4.2.a. Maintain network of flood watchers to monitor build up, runoff, and precipitation events.

4.2.b. Continue to broadcast warning information from the National Weather Service through dispatch.





Old bridge abutments in Rock Creek at Red Lodge

### **Objective 3) Prevent flooding.**

- 4.3.a. Remove old bridge abutments located in Rock Creek on the southeast side of Red Lodge (Block 32) and immediately south of Joilet that catch flotsam and cause water back-up.
- 4.3.b. Develop a storm drainage plan for Red Lodge.
- 4.3.c. Address drainage issue at Cedarwood Villa Nursing Home
- 4.4.d. Work with FEMA to study floodplain delineation along the Clarks Fork in Fromberg and Bridger and along Rock Creek in Red Lodge.
- 4.4.e. Produce maps of revised floodplain areas once adopted.



Additional drainage infrastructure needed for flash flooding

**Objective 4) Be prepared to respond when flooding does occur.**

- 4.4.a. Implement E-911 and utilize the reverse calling function.
- 4.4.b. Devise a warning system with the siren in Red Lodge for failure of Glacier Lake Dam. Educate residents about the warning system.
- 4.4.c. Devise a warning system for failure of Cooney Reservoir.
- 4.4.d. Maintain sand bag supplies at each road district.



Siren on City Hall in Red Lodge

**GOAL FIVE: REDUCE AND MINIMIZE THE MORBIDITY, MORTALITY, AND ECONOMIC IMPACT OF HUMAN AND ANIMAL DISEASE IN CARBON COUNTY.**

**Objective 1) Prevent human and animal diseases.**

- 5.1.a. Work with public health, Beartooth Hospital, and the clinics in the county to develop an education campaign on the benefits of child and adult immunization.
- 5.1.b. Continue with public education efforts on personal protection from infectious diseases.
- 5.1.c. Contract with and sponsor one or more local veterinarians to offer periodic awareness training to producers and hobby ranchers on animal disease and disease prevention.
- 5.1.d. Educate the public on proper disposal of individual animal carcasses.
- 5.1.e. Control mosquito populations in Fromberg and other wet areas of the county.

**Objective 2) Maintain adequate response capability to animal disease incidents.**

- 5.2.a. Develop protocols for mass carcass disposal.
- 5.2.b. Identify physical location(s) for disposal of non-infectious carcasses.
- 5.2.c. Order wall charts with resource information to assist in situation assessment for all veterinarians and health care facilities in the county from the Center for Food Security and Public Health.
- 5.2.d. Raise public awareness about whom to contact when questions arise about animal diseases.

**Objective 3) Maintain adequate response capability to human disease incidents.**

- 5.3.a. Coordinate with DPHHS in the region to make arrangements for a Health Officer and support staff to be brought in the event of mass disaster.
- 5.3.b. Educate local government officials, DES, and department heads that are directly involved in public health issues (EMS and law enforcement) about the necessity of public health planning, procedures, and the need to address jurisdictional and public health issues prior to an incident. Use tabletop exercises, LEPC meetings, and other means appropriate.

**Objective 4) Awareness and Monitoring**

- 5.4.a. Improve communications between local DPPHS, FWP, and DOL personnel.
- 5.4.b. Invite the State Veterinarian to offer continuing education on disaster response related to livestock in the county for local veterinarians.
- 5.4.c. Form an epidemiology team in the county consisting of the County Sanitarian, BHC infectious disease expert, Director of Public Health, Public Health Nurse, County Health Officer, and a local veterinarian. Meet quarterly to monitor disease within the human and animal population in the county.

**Project Ranking and Prioritization**

The projects were ranked by the following method. There was general discussion about those types of projects that were most important at the third Steering Committee/public meeting. The project descriptions were then finalized. Following finalization of the projects, the project list was mailed to each Steering Committee member and the three County Commissioners. These individuals were asked to rank the projects as high, medium, or low priority and return the list with the rankings to the contractor. The contractor compiled the rankings and inserted them into the following table. Those projects which arose during the review of the draft, after the Steering Committee had completed its work, were ranked by the contractor in consultation with the DES coordinator.

**Table 4.1 Mitigation Project Ranking**

<i>Number</i>	<i>Project</i>	<i>Ranking &amp; Schedule</i>	<i>Potential Resources</i>	<i>Costs/ Benefits*</i>
<b>GOAL ONE</b>	<b>Manage Impacts of Severe Winter Storms</b>			
1.1.a	Assist utilities in snow removal to restore power.	Medium Ongoing	Beartooth Electric, MDU, local govts	Cost =1 Benefits: L, BI
1.1.b.	Purchase back-up generators for shelter locations	Medium 1-3 years	Communities, County, DES, FEMA	Cost = 2 Benefits: L, BI
1.1.c.	Purchase back-up generators on trailers to be cached	Medium 4-5 years	Communities, County, DES, FEMA	Cost = 1 Benefits: L, BI
1.1.d.	Support preparation of utility Emergency Restoration plans	Medium 1-3 years	Beartooth Electric, MDU, local govt, DES	Cost =1 Benefits: L, P, BI
1.2.a.	Utilize new communications trailer	Medium Ongoing	County	Cost = 0 Benefits: L, P, S, BI
1.2.b.	Pursue improved cellular communications in Clarks Fork Valley	<b>High</b> 1-3 years	Local governments, Cellular One, Verizon, DES	Cost = 3 Benefits: L, P, S, BI
1.2.c.	Continue to issue storm warnings	<b>High</b> Ongoing	County Sheriff, NWS	Cost = 0 Benefits: L, P, S
1.2.d.	Add a repeater at Bridger	Medium 1-3 years	Bridger, County, DES,	Cost = 2 Benefits: L, P, S, BI
1.3.a.	Distribute winter storm information to new residents	Medium 4-5 years	County, DES, FEMA	Cost = 1 Benefits: L,S
1.3.b.	Invite NWS to make school presentations	Medium 1-3 years	NWS, Public schools	Cost = 0 Benefits: L
1.3.c.	Media spots on winter survival	Low Ongoing	Radio, Cable Montana, Carbon County News	Cost =1 Benefits: L
1.4.a.	Maintain shelter agreements with the American Red Cross	<b>High</b> Ongoing	Communities, Red Cross	Cost = 0 Benefits: L
1.4.b.	Develop a shelter plan for stranded individuals	<b>High</b> 1-3 years	Communities, County, Red Cross	Cost = 1 Benefits: L
1.4.c.	Educate people about shelter plan	<b>High</b> 4-5 years	Communities, Red Cross, Media	Cost = 0 Benefits: L
1.5.a.	Publish county snow removal priorities annually	Medium 4-5 years	County, Carbon County News	Cost = 0 Benefits: L, S, BI
1.5.b.	Develop a list of snow removal equipment in the county.	Medium 1-3 years	County, MDT	Cost = 0 Benefits: L, S, BI
1.5.c.	Implement an agreement with Wyoming DOT for snow removal.	Medium 4-5 years	County, MDT, WDT	Cost = 0 Benefits: L,S
1.5.d.	Implement an agreement with Park County, WY. for snow removal	Medium 4-5 years	Carbon County, MT. Park County, WY, MDT	Cost = 0 Benefits: L,S



<i>Number</i>	<i>Project</i>	<i>Ranking &amp; Schedule</i>	<i>Potential Resources</i>	<i>Costs/ Benefits</i>
<b>GOAL TWO</b>	<b>Build and Maintain Capability to Respond Quickly to Wind Events</b>			
2.1.a.	Assess tree hazards and contract a faller	Medium 4-5 years	Communities, County, DES, DNRC, FEMA	Cost = 2 Benefits: P
2.1.b.	Educate the public to report trees down on power lines	Medium 1-3 years	MDU, Beartooth Electric, County, local media	Cost = 1 Benefits: L, BI
2.2.a.	Brochures for building material and practices to avoid wind damage	Medium 1-3 years	Contractors, Red Lodge, County, DES	Cost = 1 Benefits: L,P
2.2.b.	Sponsor weather spotter training	Medium Ongoing	DES, NWS	Cost = 0 Benefits: L
2.2.c.	Educate public about utility R-O-W clearing	Medium Ongoing	MDU, Beartooth Electric, media	Cost = 1 Benefits: L
2.3.a.	Purchase weather radios	Medium 1-3 years	DES, schools	Cost = 2 Benefits: L,S
2.4.a.	Enforce Red Lodge building codes	Medium Ongoing	City of Red Lodge	Cost = 0 Benefits: L,P
2.4.b.	Host program on building material and standards for wind events	Medium 4-5 years	City of Red Lodge, County, contractors	Cost = 1 Benefits: L,P
<b>GOAL THREE</b>	<b>Minimize frequency and impact of hazmat incidents</b>			
3.1.a.	Assess past hazmat spills	Medium 4-5 years	DES, DEQ	Cost = 1 Benefits: L, BI
3.2.a.	Obtain hazmat training	Medium 1-3 years	DES, DEQ	Cost = 1 Benefits: L
3.2.b.	Review agreements for hazmat response	<b>High</b> 1-3 years	DES, County	Cost = 1 Benefits: L
3.2.c.	Update/execute new hazmat response agreements as needed	Medium Ongoing	DES, County	Cost = 0 Benefits: L, BI
3.2.d.	Obtain hazardous materials list from BNSF	Medium 1-3 years	DES, Fire Council, County Commission	Cost = 0 Benefits: L, BI

<i>Number</i>	<i>Project</i>	<i>Ranking &amp; Schedule</i>	<i>Potential Resources</i>	<i>Cost/ Benefits</i>
<b>GOAL FOUR</b>	<b>Be prepared to respond to floods as a result of dam failure, flash floods, and river flooding</b>			
4.1.a.	Educate citizens about dam failure warning system	Medium 1-3 years	Communities, County, DES	Cost = 1 Benefits: L, P, S
4.1.b.	Provide information about building in the flood plain	Medium Ongoing	Communities, County, State Floodplain Coordinator	Cost = 1 Benefits: L,P
4.1.c.	Invite the NWS to make a presentation on flooding	Medium 1-3 years	County, NWS	Cost = 0 Benefits: L, P,S
4.2.a.	Maintain network of flood watchers	Medium Ongoing	DES, NWS	Cost = 0 Benefits: L, P,S
4.2.b.	Broadcast weather warnings through dispatch	<b>High</b> Ongoing	NWS, County Sheriff	Cost = 0 Benefits: L, P,S,BI
4.3.a.	Remove old bridge abutments in Rock Creek to prevent flooding	Medium 4-5 years	County, DNRC, MDT Conservation District	Cost = 1 Benefits: L,P
4.3.b.	Develop a storm drainage plan for Red Lodge	Medium 4-5 years	City, DES, DEQ, FEMA	Cost = 1 Benefits: L,P
4.3.c.	Address drainage problem at Cedarwood Villa Nursing Home	Medium 4-5 years	City, DEQ, FEMA, Cedarwood, County Planner	Cost = 1 Benefits: P
4.3.d.	Work with FEMA to study floodplain delineations	<b>High</b> Ongoing	Bridger, Fromberg, Red Lodge, DES, County Planner	Cost = 2 Benefits: L, P,S,C,BI
4.3.e.	Produce maps of revised floodplains as appropriate	Medium Ongoing	Bridger, Fromberg, Joliet, Red Lodge, County Planner	Cost = 1 Benefits: L,P
4.4.a.	Implement E-911, reverse calling	<b>High</b> 1-3 years	County	Cost = 2 Benefits: L, P,S,BI
4.4.b.	Devise warning system for failure of Glacier Lake Dam	Medium 4-5 years	Communities, County, DES	Cost = 1 Benefits: L, P,S, BI
4.4.c.	Devise warning system for failure of Cooney Reservoir	Medium 4-5 years	Communities, County, DES	Cost = 1 Benefits: L, P,S,BI
4.4.d.	Maintain sand bag supplies	Medium Ongoing	County, DOT	Cost = 1 Benefits: P

<i>Number</i>	<i>Project</i>	<i>Ranking &amp; Schedule</i>	<i>Potential Resources</i>	<i>Cost/ Benefits</i>
<b>GOAL FIVE</b>	<b>Reduce and minimize the morbidity, mortality, and economic impact of human and animal disease in Carbon Co.</b>			
5.1.a.	Develop education campaign about benefits of immunization	<b>High</b> 1-3 years	Public Health, BHHC, Clinics	Cost = 1 Benefits: L
5.1.b.	Continue with infectious disease protection education	<b>High</b> Ongoing	Public Health	Cost = 1 Benefits: L, BI
5.1.c.	Sponsor animal disease awareness training	Medium 1-3 years	State Veterinarian	Cost = 1 Benefits: L,S
5.1.d.	Educate the public about proper disposal of animal carcasses	Medium 1-3 years	Local vets, County	Cost = 1 Benefits: S, BI
5.1.e.	Mosquito control	<b>High</b> 1-3 years	Fromberg, County	Cost = 1 Benefits: L
5.2.a.	Develop protocol for mass carcass disposal	Medium 4-5 years	County, Veterinarians	Cost = 1 Benefits: S
5.2.b.	Identify one or more locations in county for mass carcass disposal	Medium 4-5 years	County, Local Veterinarians	Cost = 1 Benefits: S
5.2.c.	Order wall charts for situation assessment	Medium 1-3 years	County, State Veterinarian	Cost = 1 Benefits: L, S, BI
5.2.d.	Raise public awareness about animal disease resources	Medium 4-5 years	State and local veterinarians	Cost = 1 Benefits: L,S
5.3.a.	Coordination with DPHHS for health officer during incident	Medium 1-3 years	Public Health, Health Officer	Cost = 0 Benefits: L,BI
5.3.b.	Educate officials about health planning	Medium 4-5 years	Public Health Dept, County Health Officer, BHHC, Clinics	Cost = 1 Benefits: L, BI
5.4.a.	Improve communications between health officials in county	Medium 1-3 years	Public Health, Health Officer, BHHC, Clinics	Cost = 0 Benefits: L, BI
5.4.b.	Sponsor veterinarian continuing ed	Medium 1-3 years	State Veterinarian	Cost = 1 Benefits: L, S,BI
5.4.c.	Form an EPI Team in the county	Medium 1-3 years	Public Health, Health Officer, BHHC, Veterinarians	Cost = 0 Benefits: L, BI

\*Costs: Estimated project costs: 0 = no additional costs, 1 = Less than \$50,000, 2 = \$50,000-\$250,000, 3 = over \$250,000

Benefits: L= lives may be saved, S = stock may be saved, P = property may be saved, C = crops may be saved, BI = business interruption may be prevented

## **Project Implementation**

The projects listed above are the means by which the county intends to realize the goals to become more disaster resistant. Accomplishing the projects will be dependent on funding, staff, and technical resources from a variety of sources including the city, county, state, and federal levels of government, not-for-profit organizations, and the business community.

Some of the projects can be undertaken by communities or the county within the existing resources. Example of this would include the projects establish sandbag stockpiles, publish the snow plowing priorities, maintain shelter agreements with the American Red Cross, and develop a warning system with the siren in Red Lodge to warn of failure of the Glacier Lake Dam.

Some of the projects can be completed by a community or the county with additional funds. The amount of funding needed will depend on the specific project. An example of this type of project would be the project to remove the old bridge abutments in Rock Creek at Red Lodge to prevent future flooding.

Some of the projects will require a public-private partnership to accomplish. An example of this would be the project in which municipalities inventory hazardous trees and then contract with a private tree service to drop the trees. The dropped trees would then be cleaned up by the property owners. Another example would be the project to address drainage issues at Cedarwood Villa associated with flash floods.

Finally, some projects require expertise and resources beyond the county. For example, the project to coordinate planning on a human disease incident with the Montana Department of Health and Human Services requires outside coordination, as would developing an agreement between the Montana and Wyoming Departments of Transportation for reciprocal snow removal assistance.

Projects will be accomplished as resources become available. Implementation of the plan will be the responsibility of the LEPC and the County Disaster and Emergency Services Coordinator acting on behalf of the county and municipalities. Plan implementation also depends on the willingness of private and not-for-profit sector entities in the county such as BNSF, Beartooth Electric, and the Red Cross to participate in specific mitigation actions and projects.





PDM Steering Committee Meeting, Joliet, December 2004

In selecting projects to compete for funding whether it is existing town, city, or county funding or funding from state and federal sources, emphasis should be placed upon the relative benefits compared to the costs of the project. Criteria such as number of people educated or protected and dollar value of assets mitigated from potential hazards should be considered and weighed. Where possible a cost benefit and/or value analysis should be completed during planning of the project.

The county and incorporated communities understand that while completion of this plan will make them eligible to compete for additional funds, it is in the best interests of the residents to proceed with those projects that can be done within existing resources while exploring avenues to obtain assistance for those projects beyond local capabilities.